



Solar Air Sampler

Installed at Liberty State Park, New Jersey, adjacent to the Statue of Liberty, the system shown is the nation's first solar cell-powered air monitoring station. It is one of more than 100 air sampling facilities operated by the New Jersey Department of Environmental Protection to determine whether air quality meets state and federal standards. Jointly sponsored by state agencies and the Department of Energy, the system includes a display which describes its operation to park visitors, a means of promoting public interest in photovoltaic (solar cell) technology.

The unit samples air every sixth day for a period of 24

hours. Air is forced through a glass fiber filter which traps minute particulate matter. The filter is removed each week for examination by the New Jersey Bureau of Air Pollution.

Heart of the quietly-operating, non-polluting monitoring station is the solar cell array, composed of 860 silicon cells which convert sunlight to 360 watts of electric power. During the day, the solar cells provide total power for the sampling equipment. Excess energy is stored in a bank of lead-acid batteries. The station draws electricity from the batteries during nighttime and the early morning hours of the weekly sampling cycle. The monitoring system was produced under management of Lewis Research Center as part of the Department of Energy's National Photovoltaic Conversion Program.